CLAIMS

We claim:

1. A color display system comprising:

a plurality of light emitting polymer (LEP) optical fibers each formed as plurality of light-emitting segments for emitting a specific color by using a special light emitting polymer ; and

said light emitting segments arranged as a two-dimensional array with each of said light emitting segments controlled to turn on and off for presenting a color image by turning on a plurality of said light emitting segments.

2. The color display system of claim 1 wherein:

each of said light emitting segments comprising an indium/tin oxide (ITO) layer segment covering said LEP optical fiber wherein said each of said ITO segments is connected to an ITO control voltage for turning on and off said light emitting segment.

3. The color display system of claim 2 wherein:

each of said LEP optical fiber is supported on an glass fiber core carrier covered by a metal electrode layer, and said metal electric layer is further covered by a light emitting polymer (LEP) layer; and

said ITO layer segments coated over said LEP layer whereby a voltage applied between said metal electrode layer and a selected ITO layer segment turning on a selected light emitting segment covered by said selected ITO layer segment for emitting a light from said LEP layer to project outwardly through said selected ITO layer segment.

4. The color display system of claim 3 wherein:

each of said metal electrode layer for each of said LEP optical fiber is connected to a set of metal electrode control voltage to function with said ITO control voltage to turn on and off each of said light emitting LEP optical fiber segments.

5. The color display system of claim 1 wherein:

said plurality of light-emitting segments are arranged to emit lights of red, green and blue colors for image display over said two dimensional array.

6. The color display system of claim 1 wherein:

said plurality of light-emitting segments formed with said plurality of LEP optical fibers are supported on a flexible planar substrate to form a flexibly foldable color display system.

/7. A color display system comprising:

a plurality of light emitting optical fibers each formed as plurality of light-emitting segments for emitting a specific color by using a special light emitting optical fiber material ; and

said light emitting segments arranged as a two-dimensional array with each of said light emitting segments controlled to turn on and off for presenting a color image by turning on a plurality of said light emitting segments.

8. A color imaging system comprising:

a plurality of light emitting optical fibers each having a light emitting-end for emitting a color pixel of a specific color by using a special light emitting optical fiber material ; and

said light emitting-end arranged as a two-dimensional array with each of said light emitting optical fibers controlled to turn on and off for presenting a color image by turning on a plurality of said light emitting-ends.

9. The color imaging system of claim 8 wherein:

each of said light emitting optical fibers further comprising an indium/tin oxide (ITO) layer wrapping around said optical fibers wherein said ITO layer is connected to an ITO control voltage for turning on and off said light emitting-end.

10. The color imaging system of claim 9 wherein:

each of said optical fibers further comprising an electrode layer wrapping around said ITO layer for applying an ITO control voltage thereon;

said color imaging system further comprising a substrate carrier provided with metal traces for connecting to said electrode layer of said optical fibers for turning on and off said light-emitting ends.

11. A method for configuring a color display system comprising:

forming a plurality of light-emitting segments on a plurality of light emitting polymer (LEP) optical fibers for emitting a segment-specific color by using a special light emitting polymer; and

arranging said light emitting segments as a two-dimensional array with each of said light emitting segments controlled to turn on and off for presenting a color image by turning on a plurality of said light emitting segments.

12. The method of claim 11 wherein:

said step of forming said plurality of light-emitting segments further comprising a step of covering each of said light emitting segments of said LEP optical fibers with an indium/tin oxide (ITO) layer segment and connecting each of said ITO layer-segments to an ITO control voltage for turning on and off said light emitting segment.

13. The method of claim 12 further comprising a step of:

supporting each of said LEP optical fibers on an substrate carrier covered by a metal electrode layer provided with conductive traces; and

connecting said ITO layer segments to a corresponding conductive trace whereby a voltage applied between said metal electrode layer and a selected ITO layer segment turning on a selected light emitting segment covered by said selected ITO layer segment for emitting a light from said LEP layer to project outwardly through said selected ITO layer segment.

14. The method of claim 13 further comprising a step of:

connecting each of said metal traces to a color image display controller for selectively turning on and off each of light-emitting segments.

15. The method of claim 11 wherein:

said step of forming a plurality of light-emitting segments further comprising a step of forming said light emitting segments to emit lights of red, green and blue colors for image display over said two dimensional array.

16. The method of claim 11 wherein:

said step of forming a plurality of light-emitting segments further comprising a step of supporting said plurality of light-emitting segments on a flexible planar substrate to form a flexibly foldable color display system.

17. A method of forming a color display system comprising:

forming a plurality light emitting segments by employing a plurality of light emitting optical fibers with each segment emitting a specific color by using a special light emitting optical fiber material ; and

arranging said light emitting segments as a two-dimensional array with each of said light emitting segments controlled to turn on and off for presenting a color image by turning on a plurality of said light emitting segments.

18. A method of configuring a color imaging system comprising:

providing a plurality of light emitting optical fibers each having a light emitting-end for emitting a color pixel of a specific color by using a special light emitting optical fiber material ; and

arranging said light emitting-end as a two-dimensional array with each of said light emitting optical fibers controlled to turn on and off for presenting a color image by turning on a plurality of said light emitting-ends.

19. The method of claim 8 further comprising a step of:

wrapping around each of said light emitting optical fibers with an indium/tin oxide (ITO) layer wherein said ITO layer is connected to an ITO control voltage for turning on and off said light emitting-end.

20. The method of claim 9 wherein:

said step of wrapping each of said optical fibers with said ITO layer further comprising step of wrapping an electrode layer around said ITO layer for applying an ITO control voltage thereon;

said method further comprising a step of providing a substrate carrier with metal traces for connecting to said electrode layer of said optical fibers for turning on and off said light-emitting ends.